From:	Ehud Barak <ehbarak1@gmail.com>
To:	111 <111@cybersec-ag.ch>
CC:	400 <400@cybersec-ag.ch> 100 <100@cybersec-ag.ch>
Date:	Tue, 4/7/2015 8:24:30 PM
Subject:	Re: Computer Learning

Hi Eli
Thx. I will read/listen to them all unsupervised.
You've mentioned Google and Baidu. Who is the similar player in Facebook?
What does Amazon and Microsoft doing in this area and with whom?
Tell Doron (Cc'd I assume) I'm waiting an email with a brief summary presentation of the Co.
Best
EB

Sent from my iPhone

On Apr 7, 2015, at 18:38, 111 <111@cybersec-ag.ch> wrote:

Dear Mr. Barak

I am forwarding you the answer of Dr. David with "heavier" links to the subject.

I hope you'll find it accurate to your expectations.

Best regards,

Doron Cohen
Vice Chairman
Telephone: +41 445852577 Mobile: +972 50 6562356
Email: 111@cybersec-ag.ch
Address: Dorfstrasse 6, 8834 Schindellegi (Zurich County) Switzerland

<image001.png>

Dear Mr. Barak,

It was a great pleasure meeting you today. It is the first time that I meet someone who is not a deep learning researcher but asks the most important questions in the domain, as you did.

The following are several overviews of deep learning, and at the end two videos with in-depth technical content.

High level overviews:

Meet the man Google hired to make AI a reality (published in Wired):
http://www.wired.com/2014/01/geoffrey-hinton-deep-learning/

Is "Deep Learning" a revolution in artificial intelligence? (published in New Yorker):
http://www.newyorker.com/news/news-desk/is-deep-learning-a-revolution-in-artificial-intelligence

Computer Science: The learning machines (published in Nature):
http://www.nature.com/news/computer-science-the-learning-machines-1.14481

Please note that the abovementioned overviews are from the past three years, and since then even more mindboggling results have been obtained in deep learning. For example, in computer vision the error rate of deep learning in object recognition is lower than humans, in speech recognition for the first time deep learning is capable of speech recognition in noisy environments, and in natural language processing deep learning is performing translation and categorization better than any previous method.

The results have been amazing in other domains as well. For example, in a previous work I have shown that computers can learn to play grandmaster-level

chess only by looking at databases of chess games, without anyone telling them even the most basic things about chess (e.g., not even knowing that a queen is worth more than a pawn). This self-learning chess program of mine reached the second place in World Computer Speed Chess Championship (competing against top commercial chess programs developed for many years), and the academic paper publishing these results received a best paper award in the leading conference in the field and won the gold medal for best human-competitive results (award for self evolved programs which exhibit super-human intelligence).

These staggering advances in artificial intelligence have caused prominent figures such as Stephen Hawking, Elon Musk, and Bill Gates to warn about the computers becoming more intelligent than humans in the near future! See, e.g.: http://www.washingtonpost.com/blogs/the-switch/wp/2015/01/28/bill-gates-on-dangers-of-artificial-intelligence-dont-understand-why-some-people-are-not-concerned/

Regarding the availability of deep learning technology outside giants such as Google, Facebook, and Baidu, the following is a good article, explaining why these large corporations are purchasing everything that has anything to do with deep learning:
http://www.technologyreview.com/news/524026/is-google-cornering-the-market-on-deep-learning/

Finally, the following are two technical presentations by two most prominent figures in deep learning:

Geoffrey Hinton (head of deep learning in Google) – "Recent developments in deep learning" (2013):
https://www.youtube.com/watch?v=vShMxxqtDDs

Andrew Ng (head of deep learning in Baidu) – "Deep learning, self-thought learning, and unsupervised feature learning" (2013):
https://www.youtube.com/watch?v=n1ViNeWhC24

The lecture by Andrew Ng focuses on unsupervised learning with deep learning, that is, learning without having any target or labelled data (as we discussed today, just looking at streams of information and finding patterns).

Please let me know if you would like additional material on deep learning.

Looking forward to meeting you again,

Dr. Eli David, PhD
(+972) 54-2922924
400@cybersec-ag.ch
My publications:
http://www.oedavid.com/pubs.html
(in the background I hope you can hear my Piano)